

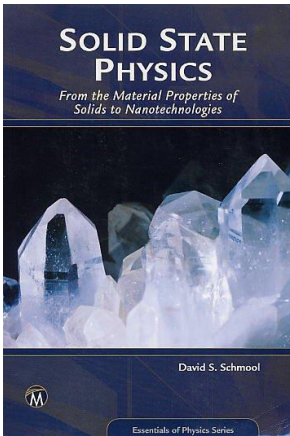
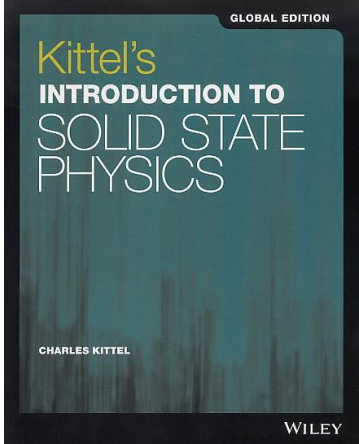
國立成功大學智慧半導體及永續製造學院
112-2 半導體製程學位學程博士學位候選人資格考核書單

Book List for Doctoral Qualifying Examination for 2024 Spring semester

of the Program on Semiconductor Process Technology

Under the NCKU Academy of Innovative Semiconductor and Sustainable Manufacturing

科目 Subject Titles	參考書籍 Book List
半導體元件物理 Physics of Semiconductor Devices	1. 參考書籍： (1) C. Hu, Modern Semiconductor Device for Integrated Circuits, Prentice Hall, 2010. (ISBN-10: 0-13-608525-3) , Ch. 4 ~ Ch. 6 (2) D. A. Neamen, <i>Semiconductor Physics & Devices: Basic Principles</i> , 4/e, McGraw Hill, 2012 , Ch. 7 ~ Ch. 12 & Ch. 14 2. 請選擇考試方式：Open book or close book
半導體製程技術 Semiconductor Manufacturing Technology	1. 請列出參考書籍： (1) Stephen A Campbell, Fabrication engineering at the micro and nanoscale, Oxford University Press Chapter 1 Intro Chapter 2 Semiconductor Substrate Chapter 3 Diffusion Chapter 4 Thermal Oxidation Chapter 5 Ion Implantation Chapter 7 Optical Lithography Chapter 8 Photoresists Chapter 11 Etching Chapter 12 Physical Deposition Chapter 13 Chemical Vapor Deposition Chapter 15 Device Isolation, Contacts, Metallization 2. 請選擇考試方式：Close book. 可使用沒有無線通訊功能之工程計算機，不得使用手機、平板、電腦等有無線通訊與文書儲存功能之設備。
光電元件 Optoelectronic Devices	1. 請列出參考書籍： (1) "Photonic Devices" by Jia-Ming Liu, Cambridge University Press, 2005 2. 請選擇考試方式：close book 3. Topics: Chapter 1 - General background

科目 Subject Titles	參考書籍 Book List
	Chapter 2 - Optical waveguides Chapter 4 - Coupling of waves and modes Chapter 5 - Optical couplers Chapter 6 - Electro-optic devices Chapter 10 - Laser amplifiers Chapter 11 - Laser oscillators Chapter 12 - Semiconductor basics Chapter 13 - Semiconductor lasers and light-emitting diodes
電磁理論 Electromagnetics Theory	1. 請列出參考書籍： (1)Elements of electromagnetics/ M. N. O. Sadiku, S. R. Nelatury (2)Field and Wave Electromagnetics/ D. K. Cheng 2. 請選擇考試方式：close book 3. 考試章節： Sadiku 和 Nelatury 的"Elements of electromagnetics"的 Ch1 至 Ch13
固態物理 Solid State Physics	1. 參考書籍：   2. 考試方式：Open book. 4. 考試內容包含: crystal lattice, reciprocal lattice, phonon, band theory, band structure, semiconductivity and superconductivity.